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Fact Sheet

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DOD NATURAL GAS USAGE STRATEGIES

The Problem

Executive Order 12759 and recent Congressional direction stress that increased use of natural gas and decreased use of petroleum products in Federal facilities will probably be required. Many Federal and State government vehicles plan to convert to natural gas within the next few years. Natural gas reserves in the U.S. are more abundant than those of oil, and technologies which broaden the application of gas combustion will reduce the susceptibility of Department of Defense (DOD) operations to fluctuations in foreign oil supply. When combined with the recent advances in high efficiency, low emission combustors, cogeneration, cooling technologies, and industrial applications, natural gas is a very cost-effective life-cycle fuel alternative.

The Technology

The U.S. Army Construction Engineering Research Laboratory (CERL) is performing a study with DOD on the potential energy and environmental impact of using natural gas for a variety of technologies on DOD installations. The study will then identify the cost saving opportunities associated with using natural gas and advanced technologies at DOD facilities.

The investigation will use the CERL-developed Renewables and Energy Efficiency Planning (REEP) program which provides capital cost, operation and maintenance requirements, environmental benefits, and life-cycle costs for a variety of energy conservation opportunities (ECOs). Existing algorithms used to analyze natural gas ECOs in REEP program have been updated to reflect the most recent technology advancements. Emerging natural gas technologies algorithms have been developed and incorporated into the REEP program. After the natural gas enhancements were incorporated into REEP, the program was used to analyze the DOD-wide potential for natural gas technologies.

Benefits/Savings

Natural gas has the potential to supply a large portion of the energy required on military bases. Recent developments in gas-fueled technologies demonstrate improved efficiency and productivity while lowering energy costs. In addition, natural gas is a clean-burning fuel. This property will facilitate DOD compliance with increasingly stringent environmental regulations. Use of natural gas can reduce emissions in power generation, industrial processes, heating, and cooling. Expanded use of natural gas and associated advanced technologies at DOD installations will reduce dependence on foreign fuel supplies.

Status

CERL has developed (in cooperation with the Institute for Gas Technology) the new REEP algorithms for natural gas technologies. CERL incorporated the algorithms into the REEP program. REEP is available for analysis of natural gas technologies within DOD. A description of the natural gas technology algorithms and a screening analysis of DOD-wide results are documented in a CERL Technical Report 98-111 titled "Energy Technology Screening Criteria."

Points of Contact

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